

Boundary in Roundup Ready Soybean.

00-10B-M120

OBJECTIVE: Determine the optimum Roundup timing when using Boundary in Roundup Ready soybean.

SUMMARY: No soybean injury was observed from any treatment. All Boundary followed by Roundup Ultra treatments controlled at least 92% of all weeds present regardless of Roundup Ultra application timing. Similar weed control was provided by Domain or Canopy XL followed by Roundup Ultra, and Boundary followed by Flexstar plus Fusion. Soybean yield ranged from 23 bu/A in nontreated plots to 45 bu/A. Soybean yield tended to be greater in plots where Roundup Ultra was applied at 4 or 5 weeks after planting compared to 3 weeks after planting.

HERBICIDES

BOUNDARY 7.8 EC
CANOPY XL 56.3 WG
DOMAIN 60 WG
FLEXSTAR 1.88 EC
FUSION 2.66 EC
PROWL 3.3 EC
ROUNDUP ULTRA 3 SL
STEEL 2.57 EC

WEEDS

COCKLEBUR, COMMON
FOXTAIL, GIANT
MORNINGGLORY, IVYLEAF
NUTSEDGE, YELLOW
RAGWEED, COMMON
SMARTWEED, PENNSYLVANIA
VELVETLEAF
WATERHEMP, COMMON

CROP

SOYBEAN

Bryan Young and Aaron Hoskins

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Boundary in Roundup Ready Soybean.

Project Code: 00-10B-M120 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. SETFA	FOXTAIL, GIANT	SETARIA FABERI HERRM.
2. CYPES	NUTSEDGE, YELLOW	CYPERUS ESCULENTUS L.
3. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
4. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
5. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.
6. XANST	COCKLEBUR, COMMON	XANTHIUM STRUMARIUM L.
7. POLPY	SMARTWEED, PENNSYLVANIA	POLYGONUM PENNSYLVANICUM L.
8. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDICUS

Crop 1:	GLXMA SOYBEAN	Variety:	B-T 369CR
Planting Method:	SEEDED	Planting Date:	May-11-00
Rate:	75 LB/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	24 FT	Reps:	3
Tillage Type:	REDUCED-TILL	Study Design:	RCB		
Previous Crop, Year:	ZEAMX, 1999	Fertilizer applied:	N 0 LB/A,	P ₂ O ₅ 0 LB/A,	K ₂ O 0 LB/A

Soil Name:	WEIR	% OM:	2.2	pH:	6.5	CEC:	12
Texture:	SILT LOAM	P ₁ :	87 LB/A,	K:	474 LB/A		

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	May-12-00	Jun-1-00	Jun-8-00	Jun-15-00	Jun-22-00
Time of Day:	8:00	7:30	9:00	9:30	9:00
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	3WAP	4WAP	5WAP	6WAP
Applic. Placement:	BROSOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	80 F	78 F	68 F	76 F	76 F
% Relative Humidity:	96	88	28	60	80
Wind Velocity, Unit:	0 MPH	2-3 MPH	5-7 MPH	2-4 MPH	3-5 MPH
Soil Moisture:	DRY	NORMAL	NORMAL	NORMAL	WET
% Cloud Cover:		0	0	0	0

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	NA	GLXMA V2	GLXMA V1-V2	GLXMA V3	GLXMA V4
Height, Unit:	NA	3-5 IN	4 IN	6-7 IN	8-10 IN

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	SETFA	SETFA	SETFA	SETFA	SETFA
Stage(leaves):	3-4	3-5	3-5	4-6	4-6
Height(inches):	1-2	2-3	2-3	4-6	5-10
Density:	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Weed 2 Code:	CYPES	CYPES	CYPES	CYPES	CYPES
Stage(leaves):	5-7	3-5	3-5	4-6	4-6
Height(inches):	2-5	2-4	2-4	4-6	6-9
Density:	HIGH	LOW	LOW	MEDIUM	MEDIUM
Weed 3 Code:	AMBEL	AMBEL	AMBEL	AMBEL	AMBEL
Stage(leaves):	2-4	4	4-6	4-8	4-8
Height(inches):	1-3	1-2	4-6	4-8	4-8
Density:	LOW	LOW	LOW	LOW	LOW
Weed 4 Code:	AMATA	AMATA	AMATA	AMATA	AMATA
Stage(leaves):	2-3	2-3	3-6	4-10	4-10
Height(inches):	0-1	0-1	2-4	3-10	3-10
Density:	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
Weed 5 Code:	IPOHE	IPOHE	IPOHE	IPOHE	IPOHE
Stage(leaves):	COTL-2	4	3-6	4-9	4-9
Height(inches):	1-2	1-2	3-4	4-7	4-7
Density:	LOW	HIGH	MEDIUM	HIGH	HIGH
Weed 6 Code:	XANST	XANST	XANST	XANST	XANST
Stage(leaves):	2-4	4-6	4-6	4-8	4-8
Height(inches):	2-4	2-3	4-6	5-9	5-9
Density:	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM
Weed 7 Code:	POLPY	POLPY	POLPY	POLPY	POLPY
Stage(leaves):	1-3	1-3	3-7	5-10	5-10
Height(inches):	1-2	1-2	4-6	6-10	6-10
Density:	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
Weed 8 Code:	ABUTH	ABUTH	ABUTH	ABUTH	ABUTH
Stage(leaves):	1-2	COTL-2	1-4	3-5	3-5
Height(inches):	1-3	0.5-2	3-5	4-7	4-7
Density:	LOW	LOW	LOW	LOW	LOW

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO, SPRAY	CO, SPRAY	CO, SPRAY	CO, SPRAY	CO, SPRAY
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8003	8002	8002	8002	8002
Boom Length, Unit:	7.33 FT	7.33 FT	7.33 FT	7.33 FT	7.33 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

NOTES: Harvested Oct-24-00, (2) 30 inch rows by 21 ft.

TABLE. BOUNDARY IN ROUNDUP READY SOYBEAN. PROJECT CODE:00-10B-M120

TREATMENT	FORM.	RATE	UNIT	PROD	RATE	APPL	APPL	YIELD	GLXMA INJURY			CONTROL, DAYS AFTER 6WAP																
									14 DA 6WAP			SETFA		CYPES		AMBEL		AMATA		IPOHE		XANST		POLPY		ABUTH		
									BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1 NONTREATED								23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	3WAP	B	37		0	0	99	99	40	96	88	98	85	95	88	98	68	91	99	99	96	97	
2 AMS	100 DRY	2.0	LB/A	2.0	LB/A	3WAP	B																					
3 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C	42		0	0	98	98	52	99	97	98	90	97	92	96	96	98	97	98	96	98	
3 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
4 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	5WAP	D	42		0	0	99	99	67	99	99	99	99	98	95	98	89	97	99	99	98	99	
4 AMS	100 DRY	2.0	LB/A	2.0	LB/A	5WAP	D																					
5 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	6WAP	E	42		0	0	98	99	63	98	98	99	96	98	90	99	95	99	80	98	95	98	
5 AMS	100 DRY	2.0	LB/A	2.0	LB/A	6WAP	E																					
6 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	3WAP	B	43		0	0	99	99	79	99	99	99	96	99	97	97	96	98	99	99	99	99	
6 AMS	100 DRY	2.0	LB/A	2.0	LB/A	3WAP	B																					
6 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	6WAP	E																					
6 AMS	100 DRY	2.0	LB/A	2.0	LB/A	6WAP	E																					
7 BOUNDARY	7.8 EC	1.71	LB A/A	1.75	PT/A	PRE	A	37		0	0	0	99	99	96	99	96	98	99	99	92	99	90	93	99	99	95	99
7 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	3WAP	B																					
7 AMS	100 DRY	2.0	LB/A	2.0	LB/A	3WAP	B																					
8 BOUNDARY	7.8 EC	1.71	LB A/A	1.75	PT/A	PRE	A	43		0	0	0	99	99	86	99	98	99	98	99	90	98	92	96	99	99	99	99
8 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
8 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
9 BOUNDARY	7.8 EC	1.71	LB A/A	1.75	PT/A	PRE	A	44		0	0	0	99	99	99	99	99	99	99	99	98	99	98	98	99	99	99	99
9 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	5WAP	D																					
9 AMS	100 DRY	2.0	LB/A	2.0	LB/A	5WAP	D																					
10 BOUNDARY	7.8 EC	1.71	LB A/A	1.75	PT/A	PRE	A	45		0	0	0	99	99	99	99	99	99	99	99	97	99	98	99	96	99	98	99
10 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	6WAP	E																					
10 AMS	100 DRY	2.0	LB/A	2.0	LB/A	6WAP	E																					
11 BOUNDARY	7.8 EC	1.22	LB A/A	1.25	PT/A	PRE	A	35		0	0	0	99	99	93	99	97	98	99	98	93	96	85	92	98	98	96	99
11 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	3WAP	B																					
11 AMS	100 DRY	2.0	LB/A	2.0	LB/A	3WAP	B																					
12 BOUNDARY	7.8 EC	1.22	LB A/A	1.25	PT/A	PRE	A	41		0	0	0	99	99	96	99	97	98	99	99	93	95	96	96	96	99	98	99
12 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
12 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
13 BOUNDARY	7.8 EC	1.22	LB A/A	1.25	PT/A	PRE	A	44		0	0	0	99	99	96	99	99	99	98	99	99	99	95	98	99	99	98	99
13 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	5WAP	D																					
13 AMS	100 DRY	2.0	LB/A	2.0	LB/A	5WAP	D																					

(CONTINUED)

TABLE. BOUNDARY IN ROUNDUP READY SOYBEAN. PROJECT CODE:00-10B-M120 (CONTINUED)

TREATMENT	FORM.	RATE	UNIT	PROD	RATE	TIME	APPL	APPL	YIELD	GLXMA INJURY			CONTROL, DAYS AFTER 6WAP															
										14	DA 6WAP		SETFA		CYPES		AMBEL		AMATA		IPOHE		XANST		POLPY		ABUTH	
										DAP	14	42	14	42	14	42	14	42	14	42	14	42	14	42	14	42	14	42
								BU/A	%	%	%	%	%	%	%	%	%	%	%	%	%							
14 BOUNDARY	7.8 EC	1.22	LB A/A	1.25	PT/A	PRE	A	42	0	0	0	99	99	96	98	99	99	99	99	91	98	96	99	99	99	98	98	
14 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	6WAP	E																					
14 AMS	100 DRY	2.0	LB/A	2.0	LB/A	6WAP	E																					
15 PROWL	3.3 EC	1.0	LB A/A	2.42	PT/A	PRE	A	34	0	0	0	99	99	30	83	90	86	98	99	93	99	90	91	99	99	97	98	
15 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
15 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
16 DOMAIN	60 WG	0.375	LB A/A	10.0	OZ/A	PRE	A	37	0	0	0	98	97	60	96	97	99	98	98	93	98	93	97	99	98	96	99	
16 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
16 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
17 CANOPY XL	56.3 WG			4.0	OZ/A	PRE	A	38	0	0	0	96	99	99	99	99	99	98	98	99	99	99	98	99	99	99	99	
17 ->CLASSIC	25 WG	0.0234	LB A/A			PRE	A																					
17 ->AUTHORITY	75 WG	0.117	LB A/A			PRE	A																					
17 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
17 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
18 FLEXSTAR	1.88 EC	0.294	LB A/A	1.25	PT/A	4WAP	C	39		0	0	95	91	40	63	99	98	98	99	95	98	98	98	99	98	94	99	
18 FUSION	2.66 EC	0.166	LB A/A	0.5	PT/A	4WAP	C																					
18 DESTINY MSO	100 LIQ	1.0	% V/V	1.0	%V/V	4WAP	C																					
18 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
19 BOUNDARY	7.8 EC	1.22	LB A/A	1.25	PT/A	PRE	A	42	0	0	0	96	98	96	98	98	98	99	98	93	99	98	98	99	99	97	99	
19 FLEXSTAR	1.88 EC	0.294	LB A/A	1.25	PT/A	4WAP	C																					
19 FUSION	2.66 EC	0.166	LB A/A	0.5	PT/A	4WAP	C																					
19 DESTINY MSO	100 LIQ	1.0	% V/V	1.0	%V/V	4WAP	C																					
19 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
20 STEEL	2.57 EC	0.964	LB A/A	3.0	PT/A	PRE	A	38	0	0	0	99	99	93	98	98	99	83	87	97	99	98	99	99	99	99	99	
20 ROUNDUP ULTRA	3 SL	0.56	LB AE/A	1.5	PT/A	4WAP	C																					
20 AMS	100 DRY	2.0	LB/A	2.0	LB/A	4WAP	C																					
LSD				9					0	0	0	3	3	41	21	8	8	6	3	6	3	20	7	8	1	5	1	
P				0.01					1.0	1.0	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	

1. PROTOCOL: NOVARTIS (DK04BA).
2. DAP = DAYS AFTER PLANTING.
3. RATING DATES:
14 DAP, 14 DA 6WAP, AND 42 DA 6WAP ON MAY-25-00, JUL-6-00, AND AUG-3-00, RESPECTIVELY.